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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/883,361	06/19/2001	Bemd Gombert	GOMBERT=4	9658

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EXAMINER

EISEN, ALEXANDER

ART UNIT	PAPER NUMBER
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2674

DATE MAILED: 10/06/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/883,361

Applicant(s)

GOMBERT ET AL.

Examiner

Alexander Eisen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 and 27-38 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 and 27-38 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

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DETAILED ACTION

1. In response to applicant's letter filed on 9 September 2003 regarding the last Office action, the following corrective action is taken.

2. Copies of the following references not previously supplied are enclosed:

Walker, US 6,072,467.

The period for reply of 3 MONTHS set in said Office Action is restarted to begin with the mailing date of this letter.

3. The substitute copy of corrected previous Office action follows.

Priority

4. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Objections

5. **Claim 7** is objected to because of the following informalities: "assigned" in line 11 of claim 7 should read --assigned--. Appropriate correction is required.

6. **Claims 29, 32, 35 and 38** are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claims recite: "wherein the machine- or computer-controllable object simulating an object or animate being is a computer-controllable object". The computer-controllable object is computer-controllable object already and therefore the latter limitation is redundant.

Claim Rejections - 35 USC § 112

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7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

8. **Claims 2, 5, 6, 27, 30, 33 and 36** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

9. Regarding claims 2, 5 and 6, the phrase "e.g." ("for example") renders the claim indefinite because it is unclear whether the limitation(s) following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

10. Regarding claims 30, 33 and 36, it is unclear what is meant by phrase "an object or animate being moving inherently and/or totally".

Claim Rejections - 35 USC § 102

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

12. **Claims 1 and 2** are rejected under 35 U.S.C. 102(b) as being anticipated by Armstrong, US 5,589,828.

With regard to claim 1 Armstrong discloses a manually activated input device (column 2, lines 12-50) for controlling motions of a real or virtual multipart objects (column 4, lines 55-60) including a force/moment sensor (see FIGS. 1-6 and 11 for different type of sensor), which is used to detect translational and rotational movements and to convert detected motions into similar action of manipulated object (column 3, lines 7-16)..

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As to claim 2, Armstrong further teaches that the sensors are truly six degree of freedom (6-DOF) sensors and this means that they inherently can sense up to twelve major directions of motion, such as six translational and six rotational motions, and it inherently can include not only twelve or thirty six kinematic interlinking assignments as required by claim 2, but in fact, with sensors continuously tracking motion in certain range, it can include practically unlimited number of assignments, limited only by the degree of digitizing the motion values. For example, using 8-bit (most common resolution for sensors) digital presentation of motion value would result in $256 \times 256 \times 256 = 16,777,216$ combinations, which can be used for interlinking assignments. Armstrong discloses at least twelve assignments (see column 3, lines 7-34).

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

14. **Claims 3-6 and 27-38** are rejected under 35 U.S.C. 103(a) as being unpatentable over Armstrong in view of Walker, US 6,072,467 (~~reference of record provided with the applicant's IDS~~).

Armstrong discloses a manually activated input device for controlling motions of a real or virtual multipart objects including a force/moment sensor, which is used to detect translational and rotational movements and to convert detected motions into similar action of manipulated object.

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Armstrong does not teach that the input device can also control such features as sounds (tone or music).

With respect to claims 3-6 Walker teaches an input device, which can control an animated character on the computer-driven screen, whereas the input device not only used to control the character's motion but also to control the sounds in order to enhance the virtual reality by adding emotional content of the movement and provide the character with speech capability (see abstract; FIGS. 1, 4, 9-10; column 7, line 66 – column 8, line 17; column 12, lines 21-24).

It would have been obvious to one of ordinary skill in the art at the time when the invention was made to add sound control taught by Walker to the input device of Armstrong, motivated by the Walker's teaching that this would enhance the versatility of the control function and would allow to accommodate emotional aspects of the virtual reality (Walker; column 3, lines 22-34 and 59-65).

As to claims 27-38, Walker further teaches a method for controlling computer-controllable object (character 16 on the computer-driven display12), the character has a plurality of individually movable parts (head, body, arms and legs are shown), wherein the computer-controllable object simulates an animate being (a character or person) (see column 6, lines 22-53; column 8, lines 6-17).

15. **Claims 7-18** are rejected under 35 U.S.C. 103(a) as being unpatentable over Armstrong in view of Dietrich et al., ("Dietrich"), US 4,785,180.

Armstrong discloses a manually activated input device for controlling motions of a real or virtual multipart objects including a force/moment sensor, which is used to detect translational

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and rotational movements and to convert detected motions into similar action of manipulated object.

Armstrong further discloses that many different types of sensors can be used for detecting the movement in all possible directions, linear and rotational (see examples in FIG. 11a-11h; column 7, lines 5-13; column 12, line 59 – column 14, line 15).

Armstrong does not specifically teach that an optoelectronic assembly can be use in the sensor, but optoelectronic displacement sensors are well known in the art.

Dietrich teaches an optoelectronic assembly, which is housed in a plastic sphere and capable of simultaneous input of six displacement components. The optoelectronic assembly (see FIG.1) includes at least six light emitting means (2-1 to 2-6), which are mounted equally angularly spaced, each including an inputting, fixedly arranged slotted aperture (3-1 to 3-6); position-sensing detectors (4-1 to 4-6), oriented by their detector axes perpendicular to corresponding the aperture slots, whereas the detectors and aperture slots are movable relative to each other.

It would have been obvious to one of ordinary skill in the art at the time when the invention was made that the optoelectronic assembly taught by Dietrich lends itself conveniently to be incorporated into the input device of Armstrong, because it provides exactly the 6 degrees of freedom input required by Armstrong, fits into a spherical handle of Armstrong, and can be readily, economically and compactly built and assembled (Dietrich; column 2, lines 3-7).

It would be also readily recognized by those ordinary skilled in the art at the time of the invention, that applying the sensor assembly of Dietrich in the device of Armstrong will simply

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constitute an alternative choice for measuring the displacements, which won't bring about any unexpected result.

As to claims 9-10, Dietrich teaches an electronic controller, which maintains the sum of the currents flowing in the corresponding position-sensing detector to a value, which is the same for all of six pairs of light-emitting means and detectors (see column 4, lines 49-60).

As to claims 11-18, Dietrich further teaches a first cylindrical ring (3) and a second cylindrical ring 5, which accommodate fixedly slotted apertures and position-sensing detectors respectively.

Conclusion

16. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Hall et al., US 5,703,623, discloses an input device with six degree-of-freedom capabilities.

Zhai et al., US 5,923,318, discloses six degree-of-freedom input device.

Hilton, US 5,222,400, discloses 6-DOF force and torque converter.

Neltoft, US 5,859,372, discloses an apparatus for manual control of the movement of real or imaginary objects by applying forces and torques to a handle.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexander Eisen whose telephone number is (703) 306-2988.

The examiner can normally be reached on M-F (8:30-4:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard A. Hjerpe can be reached on (703) 305-4709.

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Any response to this action should be **mailed to:**

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or **faxed to:**

(703) 872-9314 (for Technology Center 2600 only).

Hand-delivered responses should be **brought to:** Crystal Park Two, 2121 Crystal Drive,
Arlington, Virginia, Sixth Floor Receptionist.

Any inquiry of a general nature or relating to the status of this application or proceeding
should be **directed to:** Technology Center 2600 Customer Service Office, whose telephone
number is **(703) 306-0377**.



Alexander Eisen
September 25, 2003